

PostScript

LETTERS

Condom effectiveness for prevention of *C trachomatis* infection

Replicating methods and comparing results across studies are critical for the resolution of scientific controversies. In a recent report, Nicolai *et al* demonstrated that condoms were effective in preventing chlamydia among STD clinic patients with known exposure to *Chlamydia trachomatis*.¹ We were pleased to see the authors apply the methodology that we first presented for estimating condom effectiveness against chlamydia and gonorrhoea in 2001^{2,3} and published in the *American Journal of Epidemiology* last year.⁴ Their findings confirm the importance of restricting the study population to people with known STI exposure (that is, sexual contacts of infected people) to reduce confounding on condom effectiveness estimates against bacterial⁵ and viral^{5,6} infections.

By focusing their analysis on chlamydia alone, Nicolai *et al* underscore the need for disease specific estimates of condom effectiveness. Focusing on a single disease is important because, although condoms should protect against all infections transmitted via the male urethra (including gonorrhoea and chlamydia),⁷ other factors, such as transmission efficiency, are disease specific and may influence the magnitude of the protective effect. We would like to clarify for readers, however, that the methodology we described will also allow for disease specific estimates of protection when multiple infections are evaluated among people with known exposure. As we noted (Warner *et al* p 243), the key point is that infections diagnosed among study participants must be identical to those of the participants' infected partner. (For example, the relation between condom use and risk for gonorrhoea should be assessed only among participants exposed to gonorrhoea, likewise for chlamydia.) Maintaining this algorithm, we combined estimates for chlamydia and gonorrhoea after observing the disease specific point estimates (0.38 and 0.47, respectively) were neither appreciably nor significantly different from each other (Warner *et al* p 245). Thus, application of this methodology need not be limited to a single infection.

Nicolai *et al*'s study represents the most recent application of this methodology for estimating condom effectiveness among people with known STI exposure and, encouragingly, provides independent confirmation of the validity of this approach and of our earlier findings. This work adds to an increasing body of evidence^{4,8,9} suggesting that studies confounded by important differences between consistent users and inconsistent or non-users (for example, degree of STI exposure) tend to underestimate the protective effect of condoms against bacterial STI. Studies limited to individuals with known STI exposure are likely to estimate the protective effect of condom use more accurately. Given that such studies can be conducted using secondary analyses of

existing trial data,^{4,8} as well as routinely collected clinic data,^{1,9} we encourage investigators to adopt similar methodologies to reduce confounding when evaluating condom effectiveness.

Finally, restricting the study population to sexual contacts of infected people probably has many applications for STI research beyond assessment of condom effectiveness. This methodology for reducing confounding may also provide a clearer insight into an array of potential causative and preventive factors for STI, where studies are subject to the same sources of confounding that have plagued condom effectiveness research.

L Warner, M Macaluso, D Newman

Centers for Disease Control and Prevention, Division of Reproductive Health, Atlanta, GA, USA

L Warner, H Austin, D Kleinbaum

Rollins School of Public Health of Emory University, Department of Epidemiology, Atlanta, GA, USA

M Kamb, J Douglas

Centers for Disease Control and Prevention, Division of STD Prevention, Atlanta, GA, USA

C K Malotte

California State University – Long Beach Department of Health Science, Long Beach, CA, USA

J M Zenilman

Baltimore City Health Department, and Johns Hopkins University School of Medicine, Infectious Diseases Division, Baltimore, MD, USA

Correspondence to: Lee Warner, Centers for Disease Control and Prevention, Division of Reproductive Health, 4770 Buford Highway NE, Mail Stop K-34, Atlanta, GA 30333, USA; dlw7@cdc.gov

Disclaimer: The findings and conclusions in this letter are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention.

doi: 10.1136/sti.2005.018978

Accepted for publication 17 November 2005

References

- 1 Nicolai L, Rowhani-Rahbar A, Jenkins H, *et al*. Condom effectiveness for prevention of *Chlamydia trachomatis* infection. *Sex Transm Infect* 2005;81:323–5.
- 2 Warner L, Newman D, Peterman T, *et al*. Uncontrolled confounding: a methodologic problem in evaluating condom effectiveness for prevention of sexually transmitted diseases. National HIV Prevention Conference, Atlanta, GA, 12–15 August, 2001.
- 3 Warner L, Newman D, Peterman T, *et al*. Studying condom effectiveness for sexually transmitted disease (STD) prevention: the importance of knowing partner infection status. National STD Prevention Conference, San Diego, CA, 4–7 March, 2002.
- 4 Warner L, Newman DR, Austin HD, *et al*. Condom effectiveness for reducing transmission of gonorrhoea and chlamydia: the importance of assessing partner infection status. *Am J Epidemiol* 2004;159:242–51.
- 5 Weller S, Davis K. Condom effectiveness in reducing heterosexual HIV transmission. *Cochrane Database Syst Rev* 2001;(3):CD003255.
- 6 Wald A, Langenberg AG, Link K, *et al*. Effect of condoms on reducing the transmission of herpes simplex virus type 2 from men to women. *JAMA* 2001;285:3100–6.
- 7 Centers for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines 2002. *MMWR* 2002;51(No RR-6).
- 8 Warner L, Macaluso M, Austin HD, *et al*. Application of the case-crossover design to reduce unmeasured confounding in studies of condom effectiveness. *Am J Epidemiol* 2005;161:765–73.
- 9 Shlay J, McClung MW, Patnaik JL, *et al*. Comparison of sexually transmitted disease prevalence by reported level of condom use among patients attending an urban sexually transmitted disease clinic. *Sex Transm Dis* 2004;31:154–60.

Did the “Brazilian” kill the pubic louse?

Anecdotal experience in our clinic suggests a recent reduction in cases of pubic lice despite increased patient numbers and increasing prevalence rates of other sexually transmitted infections (STIs). Also, in recent years we have seen an increasing number of patients who have undergone extensive pubic hair removal procedures, such as the “Brazilian.” Could there be an association between the rates of pubic lice and the introduction of pubic hair removal practices? We have looked at the prevalence rates of pubic lice in relation to hair removal practices and, for comparison, also looked at the rates of gonorrhoea and chlamydia over the same period.

Annual cases of pubic lice, chlamydia, and gonorrhoea diagnosed at the Department of Genitourinary Medicine, Leeds, were obtained for 1997–2003. Prevalence rates were calculated by dividing these figures by new patient numbers. Changes in percentages were analysed using the χ^2 test and odds ratios.

The rates for gonorrhoea, chlamydia, and pubic lice between 1997 and 2003 are shown in figure 1.

Comparing 2003 with 1997 there was a significant drop in the rate of pubic lice (OR 0.41; 95% CI 0.23 to 0.70 $p=0.0004$), whereas there was a significant increase in gonorrhoea (OR 2.18; 95% CI 1.86 to 3.48 $p<0.0001$) and chlamydia (OR 1.31; 95% CI 1.21 to 1.43 $p<0.0001$).

In female patients the significant fall occurred in 2000 (2000 compared with 1997: OR 0.28; 95% CI 0.08 to 0.92 $p=0.02$), whereas in men the significant drop was later in 2003 (2003 compared with 1997: OR 0.40; 95% CI 0.22 to 0.75 $p=0.02$).

Despite rises in the prevalence of chlamydia and gonorrhoea, there has been a significant drop in pubic lice over recent years. Sexual behaviour changes cannot account for this discordance in trends of STIs so there must be another explanation. The drop in pubic lice in women appears to be most dramatic around 2000 and coincided with the introduction of extensive waxing techniques, such as the “Brazilian,” in women in the United Kingdom.

The “Brazilian” is essentially a normal bikini wax leaving a little “landing strip” of hair or nothing at all. Its origins lie in Brazil